

**Notice of Allowability**

Application No.

09/786,049

Examiner

Hetul Patel

Applicant(s)

SATO ET AL.

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 03 February 2005.
2. ☒ The allowed claim(s) is/are 1-16; renumbered as 1-3, 9, 4-5, 11-13, 10, 6-8 and 14-16, respectively.
3. ☒ The drawings filed on 13 September 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some\* c) ☐ None of the:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.  
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached  
1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.  
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

## **DETAILED ACTION**

### ***Specification***

1. This action is responsive to communication filed on February 03, 2005. This amendment has been entered and carefully considered.
2. Applicant's arguments, filed on February 03, 2005, with respect to objections and rejections cited in the previous office action have been fully considered and are persuasive. All objections and rejections cited in the previous office action have been withdrawn.
3. Claims 1-16 are allowed and renumbered as 1-3, 9, 4-5, 11-13, 10, 6-8 and 14-16, respectively.

## **REASONS FOR ALLOWANCE**

4. The following is an examiner's statement of reasons for allowance:

As described in detail in the remarks filed by Applicant, the prior arts of record do not teach or suggest, either alone or in combination, all the limitations of claims of the current invention, specifically including the following:

*[Claims 1 and 14]:* performing, as a pre-fetch protocol, a weak read operation that fails a pre-fetch request following a read request from one of the processors, if at a time of generation of the pre-fetch request, the state tags of other cache devices must be changed to read the data stored in the other cache devices.

*[Claims 4 and 15]:* in response to a pre-fetch request following a read request from one of the processors, reading data without changing state tags of other cache devices and storing the read data in the cache memory with setup of a weak state (W), if at a time of generation of the pre-fetch request, the state tags of the other cache devices must be changed to read the data stored in the other cache devices, and invalidating the data stored in the cache memory in the weak state W at a time of synchronization operation of memory consistency to attain data-consistency by software.

*[Claims 7 and 16]:* a process comprising:

- setting as a state tag, at a time of generation of a pre-fetch request following a read request from one of the processors, a passive preservation mode P to data pre-fetched from other cache devices or from the main memory;
- storing the pre-fetched data in said cache memory;
- not informing the other cache devices of the preservation of the data in said cache memory, when data for a read request from the other cache devices corresponds to the pre-fetch data to which said passive preservation mode P is set;
- invalidating the pre-fetched data in the cache memory, when according to the read request from the other cache devices, none of the other cache devices store the corresponding data, and preserving said pre-

fetch data as it is, when according to the read request from the other cache devices, the other cache devices share the corresponding data.

Claims 2-3, 5-6 and 8-13 further limit the allowable independent claims. These claims are therefore allowable for the same reason as set forth above.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hetul Patel whose telephone number is 571-272-4184. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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